Course's Name :Microcontrollers *Course's Number :12120305* *Exam's Period :50 min* *Questions' Number : 5* *Total Mark :30* *Pages' Number :1*	**Palestine Technical University - Kadoorie**  *First...Exam* *...2...Semester 2012/2013*	*Instructor's Name :Basim Alsayid* *Student's Name:* .... *Student's Number:* .... *Section's Number:* .... *Exam's Date :20/5/2013* *Form :*

معن سلام مقدادات

Q1) what is the content of the working register after the following programs:

a) Movlw .39 decimal   b) Movlw 2DH Hexa   (8)
w=----- binary   w=-----decimal

Q2) Show the status of C,DC and Z flags after the following program: (8)

movlw 9FH
addlw 61H

Q3) Explain the principle of operation of OTP memory. (4)

Q4)What are the main characteristics of pic16f872 ? (5)

28 pin 3 I/O ports 20 MHz 3 timer 10 bit adc

Q5) Draw the block diagram of the inside the cpu. (5)

The END

1 0 0 1 1 1
2^5 2^4 2^3 2^2 2^1 2^0
32 0 0 4 2 1

(39) = 32 + 4 + 2 + 1

1 0 0 1 1 1
32 16 8 4 2 1

1 0 0 1 1
2^4 2^3 2^2 2^1 2^0

1 0 1 1 0 1
32 + 8 + 4 + 1

32
13
45

10 11 12 13 14 15
A B C D E F

تم الرفع بواسطة
م. معن الوعيسي

امتحان أول مصححا دقيقة + الإجابات

MW 9.30 – 11.00 (27/30) Micro 1st Exam 20/5/2013 Mon.

Name : Maen Qedan | معن سلام قعدان |  [redacted]

Q1 **a** MOVLW .39

.39 = 39 in Decimal

$(39)_{10} = (100111)_2$

(8)

∴ W = (100111) binary

$(100111)_2$
$2^5\ 2^4\ 2^3\ \ 2^2\ 2^1\ 2^0$
32 + 0 + 0 + 4 + 2 + 1
= 39

---

b MOVLW 2DH

$(2D)_H = (45)_{10}$

∴ W = (45) in decimal.

2 D
$16^1\ 16^0$
= 32 + 13
= $(45)_{10}$

OR

2D = $(00101101)_2$
$2^7\ 2^6\ 2^5\ 2^4\ 2^3\ 2^2\ 2^1\ 2^0$
= 32 + 8 + 4 + 1
= $(45)_{10}$

Q2 9F H = $(10011111)_2$

(8) 61 H = $(01100001)_2$

		1	1	1	1	1	1	1	
9FH ←		1	0	0	1	1	1	1	1
61H ←		0	1	1	0	0	0	0	1 +
	1	0	0	0	0	0	0	0	0
		D7	D6	D5	D4	D3	D2	D1	D0

C = 1

DC = 1

Z = 1

Q3 OTP Memory means "One Time Programming" Memory, and this property related to PROM Memory, The memory is manufactured without adding the program to it, we can program it for just one time, and then the program or the software cannot ~~altered~~. be altered any more.

0,5

Q4 The main characteristics of PIC 16F872 is:-

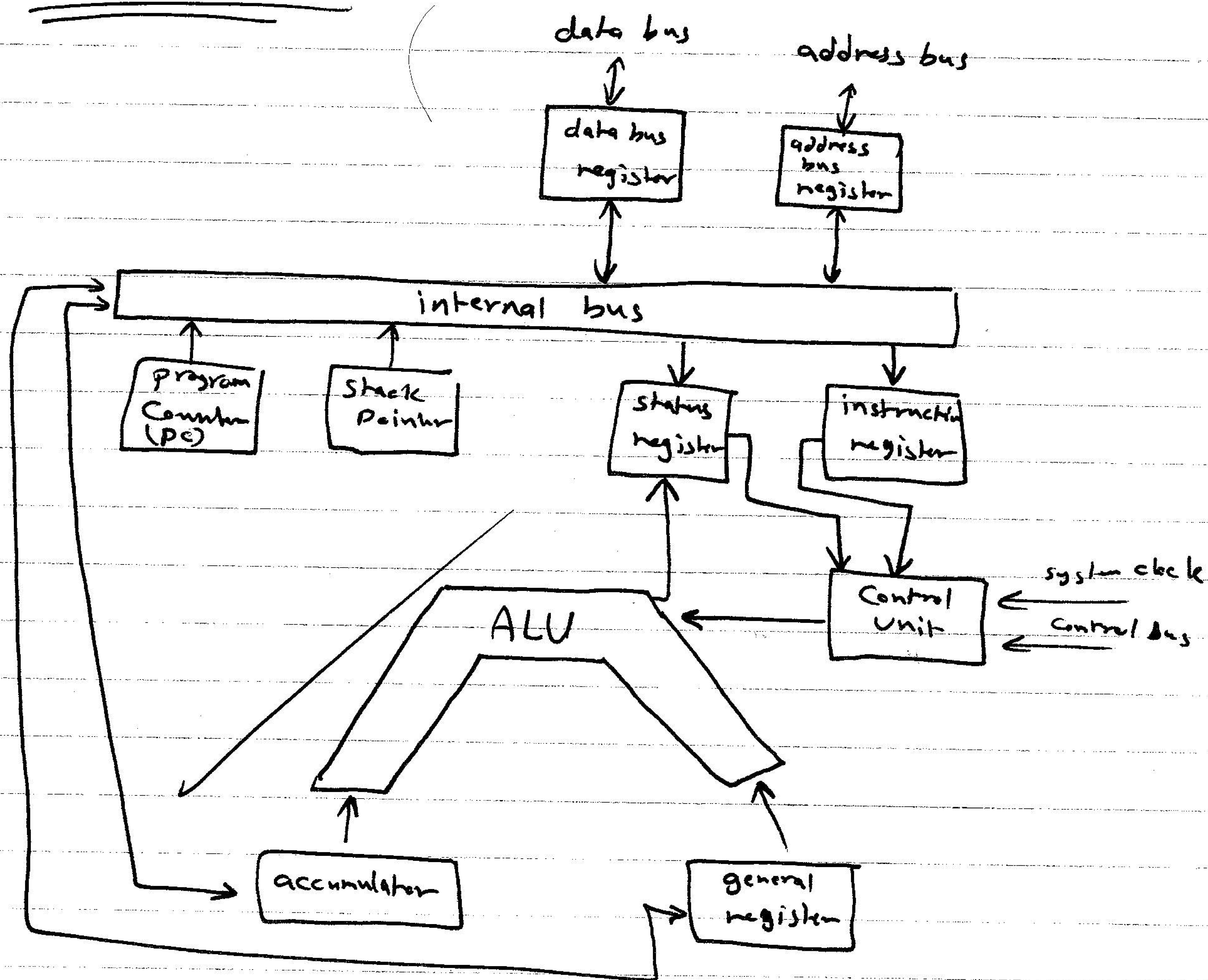
5

1. 28 Pins.
2. 3 I/O ports existed on PIC.
3. Max frequency = 20 MHZ.
4. There is 3 timers in the PIC.
5. 10 bits ADC (Analog to Digital Converter).

Inside the cpu

Q5

5



"تَمَّ بِحَمْدِ الله"